

2. (Amended) The method of Claim 45 wherein in said providing step (b) said vertical width of said n-type dopant region is less than about 2000 Å.

3. (Amended) The method of Claim 2 wherein in said providing step (b) said vertical width of said n-type dopant region is from about 800 to about 1200 Å.

4. (Amended) The method of Claim 45 wherein in said providing step (b) said n-type dopant region has a peak doping concentration and said collector has a peak doping concentration, wherein said peak doping concentration of said n-type dopant region is greater than said peak doping concentration of said collector.

5. (Amended) The method of Claim 45 wherein in said providing step (c) said base has a peak doping concentration and wherein said n-type dopant region has a peak doping concentration that is lower than said peak doping concentration of said base.

6. (Amended) The method of Claim 45 wherein in said providing step (b) said n-type dopant region comprises a dopant selected from the group consisting of As, Sb and P.

8. (Amended) The method of Claim 6 wherein in said providing step (b) said n-type dopant region is formed by ion implantation and activation annealing.

12. (Amended) The method of Claim 45 wherein in said forming step (c) said n-type dopant region is located adjacent the base-collector junction.

13. (Amended) The method of Claim 45 wherein in said forming step (c) further comprises providing a lightly doped collector separating said n-type dopant region from said base.

15. (Amended) The method of Claim 45 wherein said forming step (c) comprises forming a heterojunction.

22. (Amended) The method of Claim 45 wherein said deep collector is formed by ion implantation and annealing.

23. (Amended) The method of Claim 45 wherein in said providing step (a) said sub-collector is formed by ion implantation into a substrate or by epitaxially growing said sub-collector on a substrate.

24. (Amended) A bipolar transistor comprising:
an emitter, a base, a collector, a base-emitter junction, and a base-collector junction, wherein said collector comprises a subcollector, a deep collector and a n-type dopant region between said sub-collector and said base-collector junction, said n-type dopant region is located atop and in contact with said deep collector and has a vertical width sufficiently narrow to avoid lowering collector-base breakdown voltage and a dopant concentration sufficiently high to restrict base widening when the base-junction is forward biased.

25. (Amended) The bipolar transistor of Claim 24 wherein said n-type dopant region is located adjacent the base-collector junction.

26. (Amended) The bipolar transistor of Claim 24 wherein said vertical width of said n-type dopant region is less than about 2000 Å.

27. (Amended) The bipolar transistor of Claim 26 wherein said vertical width of said n-type dopant region is from about 800 to about 1200 Å.

28. (Amended) The bipolar transistor of Claim 24 wherein said n-type dopant region has a peak doping concentration and said collector has a peak doping concentration, wherein said peak doping concentration of said n-type dopant region is greater than said peak doping concentration of said collector.

29. (Amended) The bipolar transistor of Claim 24 wherein said base has a peak doping concentration and wherein said n-type dopant region has a peak doping concentration that is lower than said peak doping concentration of said base.

30. (Amended) The bipolar transistor of Claim 24 wherein said n-type dopant region comprises a dopant selected from the group consisting of As, Sb and P.

32. (Amended) The bipolar transistor of Claim 24 further comprising a lightly doped collector separating said n-type dopant region from said base.

34. (Amended) The bipolar transistor of Claim 24 wherein said n-type dopant region provides a higher speed of the transistor by restricting base widening.

37. (Amended) The bipolar transistor of Claim 24 wherein said n-type dopant region has a dopant concentration of from about $5E16$ to about $5E17 \text{ cm}^{-3}$.

38. (Amended) The bipolar transistor of Claim 24 wherein said n-type dopant region has a dopant concentration of from about $8E16$ to about $2E17 \text{ cm}^{-3}$.

Please add the following new claim:

--45. A method of fabricating a bipolar device comprising the steps of:

- (a) providing a structure comprising at least a sub-collector region, a collector region and isolation regions, said collector region including a deep collector region located therein;
- (b) forming a n-type dopant region within said collector region so as to be in contact with said deep collector, said n-type dopant region having a vertical width sufficiently narrow to avoid lowering collector-base breakdown voltage and a dopant concentration sufficiently high to restrict base widening when a base-emitter junction is forwarded biased;
- (c) forming a base; and
- (d) forming an emitter.--